Improving Responsiveness to Patient Phone Calls: A Pilot Study

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Abstract

Optimal patient-physician communication in the outpatient clinical setting is critical for safe and effective patient care. Keeping track of multiple patient telephone messages can be difficult and hazardous if a structured system is not in place. A multidisciplinary group at Hershey Medical Center developed a standardized approach for addressing patient telephone calls at their outpatient surgical clinics. This program was designed to improve the patient experience by providing a realistic time frame for phone calls to be returned and requests fulfilled. Additionally, this system permitted phone calls to be tracked and documented appropriately and allowed for prioritization of urgent and emergent messages. Our intent for this program was to close potential gaps within the communication chain at our outpatient surgical clinics, improve overall communication between clinicians and their patients, and improve both patient and employee satisfaction.

Keywords

quality improvement, patient expectations, physician-patient communication, telephone triage, Six Sigma Black Belt

Introduction

Optimal patient–physician communication in the outpatient clinical setting is critical for safe and effective patient care. The manner in which patient telephone calls are addressed has the potential to affect health outcomes and patient satisfaction (1,2). From simple form requests to urgent postoperative complaints, a wide variety of patient messages come through the office that needs to be addressed timely by a clinician. However, a busy physician schedule often cannot accommodate immediate attention to multiple patient requests, and keeping track of patient telephone messages can be difficult if a structured system is not in place. Inappropriate handling of an urgent patient phone call may result in devastating consequences if not anticipated and prevented.

Telephone triage systems, or appropriate redirection of calls, can play an integral role in managing patient phone calls at outpatient clinics. This type of service allows for a standardized approach to guide decision-making for trained office staff, provides a realistic time frame for calls to be returned and requests to be fulfilled, permits phone calls to be tracked and documented appropriately for quality improvement purposes, and it creates a culture of accountability (3,4). At Hershey Medical Center (HMC), we did not have a standardized approach for dealing with patient phone calls across our outpatient surgical clinics. We recognized that the lack of a standardized approach could potentially result in patient telephone messages being missed, responses to patients being delayed, and could lead to patient and employee dissatisfaction as well as harm the overall patient experience. Our biggest concern was that without a good system in place, the patient could be at risk for a harmful event due to our lack of responsiveness. In this article, we highlight our stepwise approach to developing and

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Table 1. List of Possible Patient Telephone Inquiries.

	Emergent Inquiries (Return Call Immediately)	Urgent Inquiries (Return Call Within 1 Hour)		Nonurgent Inquiries (Variable Timing Listed Below)
Complaint/inquiry[a]	Chest pain	-Wound problems		• Forms: Disability/FMLA/ Worker's Compensation/PT/ OT (10 business days)
	Shortness of breath		• Fever, chills, general malaise (flu-like symptoms), elevated temperature	• Return to work and work excuse notes (48 hours)
	Decreasing level of consciousness		• Increased in bleeding from surgical site	• Laboratory orders and nonurgent results (24 hours)
			• New redness and warmth around incision	• Prescription refills (48 hours)
			• Increased pain, swelling at surgical site	• Authorizations/referrals (72 hours)
			• Drainage coming from wound (pus, foul odor)	• Nonurgent patient questions (24 hours)
			• Wound dehiscence (wound coming apart)	• Nonurgent complaints/ concerns (24 hours)
		-Postoperative constipation, abdominal pain (patient could have a postoperative bowel obstruction (ileus)		
		-Persistent nausea and vomiting after surgery (can also indicate a bowel obstruction)		
		-Inability to urinate or loss of bowel/bladder		
		-Falls — with or without significantly increased pain		
		-Calf pain/cramping with or without persistent swelling of lower extremity, especially if post-op or nonweight bearing		

Abbreviations: FMLA, Family and Medical Leave Act; OT, occupational therapy; PT, physical therapy.
[a]This list may not fully encompass all of the possible patient telephone inquiries.

implementing a standardized response and timeline expectation for addressing patient telephone inquiries. This pilot program was a collaborative across 5 outpatient surgical practice sites within HMC, including orthopedics, neurosurgery, women's health (obstetrics and gynecology) teams A and B, plastic surgery, and breast care.

Telephone Pathway Program Development

Step 1: Identifying Patient Inquiries

Our first step involved identifying all possible patient telephone inquiries, which we found to be similar across the involved surgical specialties. For simplicity, we chose not to include telephone calls related to patient scheduling, as they typically do not require a clinical decision to satisfy the request. The remaining potential patient inquiries were categorized as nonurgent, urgent, or emergent. For example, patient requests for paperwork, lab results, or notes for work and school were classified as nonurgent. Patient calls involving concerns related to their diagnosis or surgery, such as wound-related problems, leg swelling, or digestive issues, were categorized as urgent. Patient complaints of chest pain, shortness of breath, or decreasing level of consciousness were determined to be life-threatening and thus were categorized as emergent. The comprehensive list is shown in Table 1. It is important to

note that this list may not encompass all possible patient inquiries, which was taken into account during formulation of the telephone pathway.

Step 2: Defining and Delegating Roles

Our second step was to identify the staff that could handle patient telephone calls at each practice site. The plastic surgery, breast care, and neurosurgery clinics chose to recruit and share 3 medical office assistants (MOAs) housed separately in a pod that would be dedicated to redirecting patient calls to the appropriate site. Orthopedics, women's health team A, and women's health team B chose to maintain their current system, as they each had already established an internal phone pod within their clinic to handle patient calls. Within the orthopedic and women's health clinics, however, phone calls were managed by MOAs/medical assistants (MAs) who hold additional clinic roles (ie, checking in and rooming patients).

We also designated an individual who could make clinical judgments such as a nurse, nurse practitioner, or physician assistant at each practice site who could address patient messages received from the MOAs/MAs. Each clinic was responsible for identifying this individual each day who would serve as the MOAs/MAs immediate direct contact for urgent and emergent issues, or for patient inquiries that they
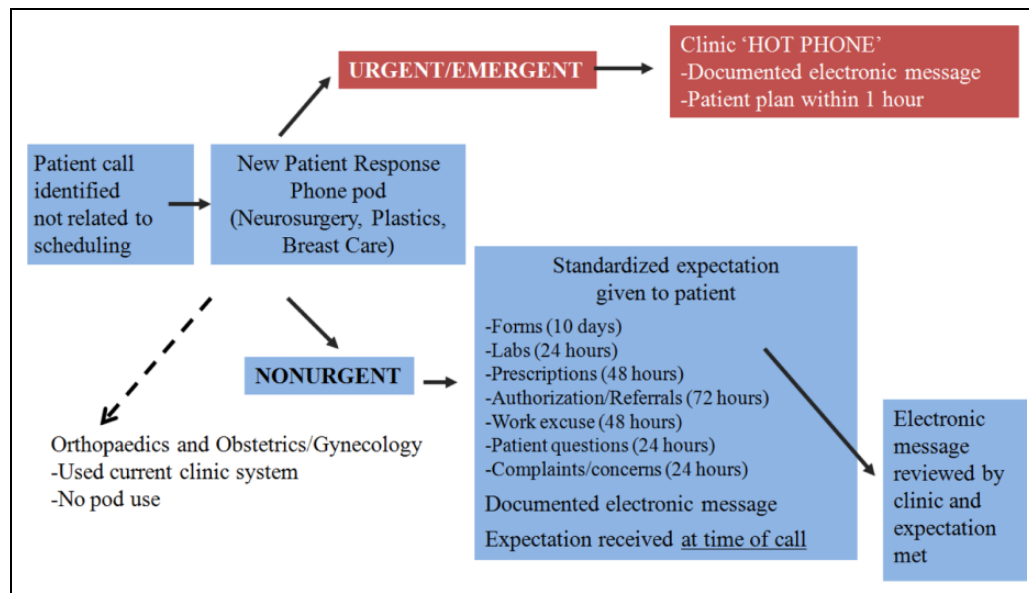
Figure 1. Telephone pathway process.

were not sure how to classify. A dedicated phone, often referred to as the "hot phone," was carried by this individual.

Step 3: Developing an Algorithm

Our third step involved creating an algorithm for handling each patient telephone request based on its category (Figure 1). Scripted responses were created for nonurgent, urgent, and emergent inquiries. The MOA/MA would categorize the patient telephone inquiry and then used the associated scripted response, giving the patient an expected timeframe for the request to be fulfilled. If the MOA/MA was unsure how to classify a patient telephone call, they would call the designated clinician on the "hot phone" for assistance. If a patient inquiry was considered nonurgent, the timeframe for request fulfillment was variable depending upon its type. For example, work excuse notes were expected to be completed within 48 hours, referral forms were to be completed within 72 hours, and disability forms were to be completed within 10 business days (Table 2). If a patient inquiry was designated as urgent, the MOA/MA used the associated scripted response, giving the patient assurance that they would be contacted by a clinician within 1 hour. The MOA/MA would then immediately inform the designated clinician via the "hot phone" of the urgent need. Patient complaints of chest pain, shortness of breath, or decreasing level of consciousness were determined to be emergent, and the MOA/MA was instructed to tell the patient to dial 911 immediately. The MOA/MA would then immediately contact the clinician at the appropriate clinic. Every patient phone call was documented by the MOA/MA in an electronic message format that was sent to the

corresponding outpatient practice site and saved in the patient's electronic medical record. Each electronic message was updated by the designated clinician or office staff once the inquiry was addressed.

Step 4: Implementation

A 25 day pilot trial of our telephone pathway was performed at each practice site from March 18, 2013, to April 11, 2013 to collect baseline data. The standardized telephone system was activated during office hours only. Calls were tracked via electronic messages documented by the MOA/MA at the time of each patient inquiry. Each practice site kept track of these electronic messages, and at the conclusion of the trial, they each submitted all of their urgent calls and a variable number of their nonurgent calls for review. Because it was determined that the types of phone calls received by all of the outpatient surgical clinics were similar, the number of phone calls that each clinic submitted did not need to be standardized to prevent specialty bias. Therefore, the busier clinics chose to manually review every 10th call during the pilot trial, whereas the less busy clinics manually reviewed every call. Upon completion of the pilot trial, there were a total of 263 urgent calls and 758 nonurgent calls that were submitted across all sites. Orthopedics submitted 80 of 800 nonurgent calls, breast care submitted 63 nonurgent calls, plastic surgery submitted 54 nonurgent calls, women's health team A submitted 52 of 520 nonurgent calls, women's health team B submitted 54 of 540 nonurgent calls, and neurosurgery submitted all of their patient nonurgent calls, contributing a total of 455 phone calls for analysis. There were no recorded emergent calls.

Table 2. Guidelines and Scripted Responses for Emergent, Urgent, and Nonurgent Patient Inquiries.

	Emergent Inquiries	Urgent Inquiries	Nonurgent Inquiries
Script to patient	"Thank you very much for your phone call. Based on what you are telling me this is something that we would consider an emergent problem and you should call 911 immediately and I will notify your care provider's office."	"Thank you very much for your phone call. Based on what you are telling me this is something that we would consider an urgent problem and I will call your care providers office. Our goal is to get back to you within 1 hour. If you have not heard from anyone in 1 hour then please call back, my name is … and I will do my best to help you."	"Thank you very much for your phone call. I would be happy to help you with this. Our policy is … If you do not receive your information within this timeframe, please do not hesitate to call back, my name is … and either I or one of my colleagues would be happy to help you."
MA/MOA action	Call designated clinician on "hot phone" immediately and document via electronic message	Call designated clinician on "hot phone" immediately and document via electronic message	• Electronic message to practice site: • Forms (10 days) • Lab and nonurgent results (24 hours) • Prescription refills (48 hours) • Authorizations/referrals (72 hours) • Return to work/work excuses (48 hours) • Nonurgent patient questions (24 hours) • Nonurgent complaints/concerns (24 hours)
Clinician action	Return phone call immediately	Return phone call within 1 hour	Complete or sign appropriate paperwork as needed within time frame listed

Abbreviation: MA/MOA, medical assistant/medical office assistant.
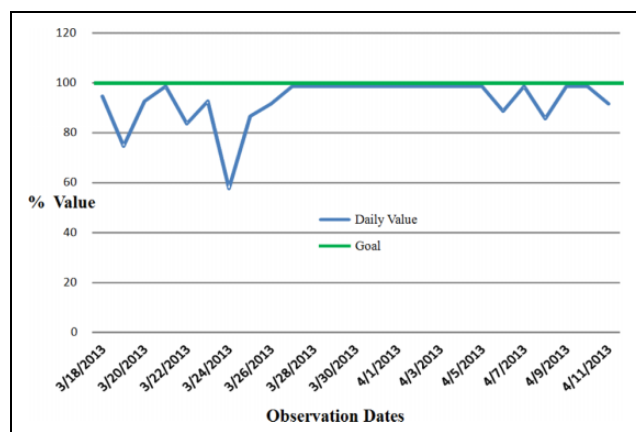
Figure 2. Percentage of urgent calls returned within 1 hour.

Assessment and Baseline Data

We incorporated multiple modes of assessment within our program. Each of the submitted phone calls, both urgent and nonurgent, was manually reviewed to determine the time when the call was received and when the message was addressed. Out of the 263 urgent calls, 242 (92%) of them were addressed within 1 hour (Figure 2). The 758 nonurgent calls were broken down into subcategories. The most common subcategory was found to be general questions, followed by prescriptions and lab results (Table 3). Overall, 91.5% (689 of 758) of the standardized expectations given for nonurgent calls at the time of patient inquiry were met. Plastic surgery met 100% (54 of 54) of the standardized expectations, followed by breast care at 98.4% (62 of 63), women's health team B at 92.6% (50 of 54), neurosurgery at 92.3% (420 of 455), women's health team A at 84.6% (44 of 52), and orthopedics at 73.8% (59 of 80).

The 3 MOAs/MAs dedicated to patient phone calls for the breast care, plastic surgery, and neurosurgery clinics were individually analyzed on their efficiency of answering calls. The telephone service factor (TSF) is the percentage of calls that were answered within 20 seconds (goal: $\geq 80\%$); abandoned phone calls (ABAs) is the percentage of patients who hung up after 20 seconds or more of holding (goal: $\leq 5\%$); and average speed of answer (ASA) is the average time it takes to answer an incoming call (goal: ≤ 30 seconds). On average, the TSF was 95%, meaning that 95% of the patient phone calls were answered within 20 seconds, with the average ASA being 11 seconds in March and 7 seconds in April. The ABA percentage was 1.28% in March and 0.8% in April. The weekly average number of phone calls noted among these 3 clinics was 483 calls. (Table 4).

Table 3. Expectation Results by Practice Site for Nonurgent Calls.[a]

Expectations Met	Appointments	Authorizations/ Referrals	Forms	Labs/ Results	Patient Complaints	Patient Questions	Work Excuse	Prescriptions	Total	Expectations Met, %
Yes	24	21	62	86	11	295	29	161	689	91.50
Orthopedics		3	5	3		30	3	15	59	73.80
Breast care	1	2		17		38	1	3	62	98.40
Neurosurgery	20	15	36	39	11	207	8	84	420	92.30
Plastic surgery	2	1	14	2			12	23	54	100.00
Women's health team A			3	11		10	2	18	44	84.60
Women's health team B	1		4	14		10	3	18	50	92.60
No	6	1		5		23	2	12	49	
Orthopedics	3					10	2	5	20	
Breast care						1			1	
Neurosurgery	3	1				8		4	16	
Women's health team A				3		3		2	8	
Women's health team B				2		1		1	4	
Unknown	1			3		5		6	15	
Orthopedics								1	1	
Neurosurgery	1			3		5		5	14	
Total	31	22	62	94	11	323	31	179	753	

[a]Breakdown of nonurgent calls for each practice site and the total percentage of each site when they met the set expectation.

Table 4. MOA/MA Pod Response Results by Month.

	TSF (%)	ABA (%)	ASA (seconds)	Total Calls	Longest Call Wait Time	Average Talk Time
MARCH						
Breast care	94.78	1.49	13	134	10.65 minutes	120 seconds
Plastic surgery	95.31	1.56	11	256	7.02 minutes	120 seconds
Neurosurgery	96.69	0.78	8	513	8.43 minutes	163 seconds
Average	95.59	1.28	11	903	8.70 minutes	134 seconds
April						
Breast care	94.96	0.89	8	337	2.65 minutes	107 seconds
Plastic surgery	96.6	1.13	6	529	1.50 minutes	111 seconds
Neurosurgery	94.66	0.47	8	1274	4.12 minutes	136 seconds
Average	95.41	0.83	7	2140	2.75 minutes	118 seconds

Abbreviations: ABA, abandoned calls; ASA, average speed of answer; MOA/MA, medical office assistant/medical assistant; TSF, telephone service factor.

Patient satisfaction baseline data were gathered through the Press Ganey national survey during the pilot trial, which we found to be an average of 88%. This quantity represents a percentage of the number of times a patient selected "Always" or "Very Good" for each of the following given phrases: Ease of getting clinic on the phone, helpfulness on the phone, and promptness in returning calls. These baseline results will be useful for trending purposes upon regular implementation of our program at HMC. We believe that improved efficiency with handling patient phone calls will improve patient satisfaction and significantly affect the overall patient experience. Regarding employee compliance and satisfaction, we had a dedicated manager overseeing the telephone pod and surgical clinics. The manager's role included observing the workflow, reviewing the electronic messages created for each patient call, assessing staff performance, and judging the effects of the pilot on the employees. The employee feedback was quite positive during the trial. Office staff at the plastic surgery, breast care, and neurosurgery clinics verbally and visually expressed happiness and lower stress levels with the addition of the telephone pod. They felt it decreased the daily chaos in the office with handling phone calls between other duties. The authors would like to acknowledge all fellow colleagues and coworkers, because in just 25 days, the clinical staff grew to appreciate the culture of accountability and embraced the idea that "we are doing this so that we can take great care of our patients."

Lessons

The present study is not without limitations. One of the biggest challenges with this project was the tedious manual process involved with tracking the timing of phone calls. This would not be feasible for long-term use when considering expansion of the project. Information technology support for creating automated reports will be crucial. Additionally, our program was only available during regular office hours. Patient calls during evenings and weekends were handled by our usual institutional answering system and were not able to be accounted for. Despite these limitations, this pilot trial has afforded us baseline data upon which to build.

One lesson that we drew from our limited baseline data is that there may be a benefit to using dedicated staff for handling phone calls instead of utilizing office staff with multiple roles. This of course may not be practical at some clinics but should certainly be a consideration for clinics that have a high phone call volume. Although our pilot trial did reveal significantly better results with dedicated staff handling patient phone calls compared to office staff with multiple roles (98.4%-100% vs 73.8%-84.6%), it is important to note that the dedicated MOAs/MAs were monitored regularly and they received feedback, which has potential to influence performance. Our results of this improved performance support the value of regularly observing and evaluating the telephone staff. The consequence of regular auditing can create a Hawthorne effect, which is a form of bias where patients act differently knowing they are being observed. Knowing that one is receiving evaluations and being held accountable can certainly play a role in improving the patient experience.

A second lesson from our program stems from an inherent restraint found with most telephone triage systems, which is regarding the appropriateness of decisions made by office staff with handling patient calls. Determining the level of urgency of a patient request or complaint over the phone requires many skills, such as the ability to gather a thorough history, ask appropriate open-ended questions, and rely on auditory cues. Due to the lack of visual contact, the ability to communicate becomes much more crucial (3,5,6). A study by Giesen et al found a positive correlation between accurate determinations of urgency with training specific to telephone triage guidelines, suggesting that training can improve triage accuracy and thus improve patient safety. Additionally, they found no correlation with educational background, further supporting the value of job-specific training (7). Multiple other studies support the use of MOAs/MAs in specific roles outside of their original scope that require separate training (8,9). The issue of triage was a major concern when implementing our pilot program as the individuals who were coming first in contact with the patient calls were MOAs/MAs who are not allowed to "medically triage" patients. Our MOAs/MAs were a crucial component to our program, and they each received rigorous training prior to the start of the pilot trial. We proceeded with the program with the understanding that our well-trained MOAs/MAs

were "redirecting" telephone calls to the designated clinician who then had the scope and capability to perform clinical decision-making. Creating the standardized scripting and pathway guidelines was critical to this concept, and the MOAs/MAs were instructed to call the "hot phone" if ever in doubt.

Conclusion

A standardized telephone system and pathway can be an effective way to improve upon patient–physician communication outside of the clinic, provide a safeguard for addressing emergent and urgent patient phone calls, and potentially improve patient and employee satisfaction. We are confident that we have improved our approach to dealing with patient telephone calls not related to scheduling appointments by developing a pathway that has allowed us to become more responsive to the urgent and nonurgent needs of our patients and also by establishing accountability through standardized expectations across 5 different surgical practice sites. Since implementation of this pilot study, we have embarked on expanding our program across our entire institutional enterprise, which encompasses 62 outpatient practice sites. We are currently collaborating with our institutional and informational technology experts, formulating a Six Sigma Black Belt project to further analyze this process and develop an institution-wide solution. By creating this expansion, we plan to help decrease unnecessary phone call volume and unnecessary visits to the emergency department, decrease medical liability, increase patient safety and satisfaction, and improve staff accountability through streamlined best practices. We also hope to provide a good example for other institutions to emulate and create similar programs, improving the patient experience by putting the patient first.

References

1. Lee VS, Miller T, Daniels C, Paine M, Gresh B, Betz AL. Creating the exceptional patient experience in one academic health system. Acad Med. 2016;91:338-44.
2. Yilmaz TU, Gumus E, Salman B. Problems in communications with patients in general surgery outpatient practice. Eurasian J Med. 2015;47:184-9.
3. Blank L, Coster J, O'Cathain A, Knowles E, Tosh J, Turner J, et al. The appropriateness of, and compliance with, telephone

triage decisions: a systematic review and narrative synthesis. J Adv Nurs. 2012;68:2610-21.

4. Liss DT, Reid RJ, Grembowski D, Rutter CM, Ross TR, Fishman PA. Changes in office visit use associated with electronic messaging and telephone encounters among patients with diabetes in the PCMH. Ann Fam Med. 2014;12:338-43.

5. Ernesater A, Engstrom M, Winblad U, Rahmqvist M, Holmstrom IK. Telephone nurses' communication and response to callers' concern: a mixed methods study. Appl Nurs Res. 2016;29:116-21.

6. Huibers L, Keizer E, Giesen P, Grol R, Wensing M. Nurse telephone triage: good quality associated with appropriate decisions. Fam Pract. 2012;29:547-52.

7. Giesen P, Ferwerda R, Tijssen R, Mokkink H, Drijver R, van den Bosch W, et al. Safety of telephone triage in general practitioner cooperatives: do triage nurses correctly estimate urgency? Qual Saf Health Care. 2007;16:181-4.

8. Freund T, Everett C, Griffiths P, Hudon C, Naccarella L, Laurant M. Skill mix, roles and remuneration in the primary care workforce: who are the healthcare professionals in the primary care teams across the world? Int J Nurs Stud. 2015;52:727-43.

9. MacKay FD, Anderson JE, Klein MC, Berkowitz J, MacKay JT, Gailius J. The modified medical office assistant role in rural diabetes care. Can J Rural Med. 2014;19:49-56.

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